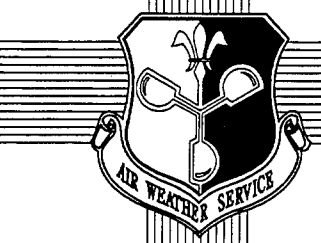
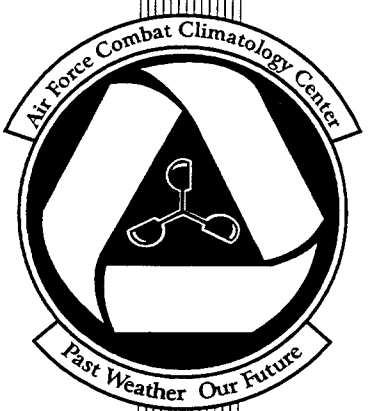
AFCCC/TN–96/001



Directory of Climatic Databases

Available from OL-A, AFCCC

By
Phillip G. Clouse
T. Jonathan Whiteside



JANUARY 1996

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Air Force Combat Climatology Center
859 Buchanan Street
Scott Air Force Base, Illinois 62225-5116

REVIEW AND APPROVAL STATEMENT

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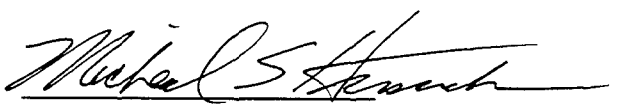

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13. Abstract: A directory of climatic databases available from OL-A, AFCCC. Brief descriptions of each database give potential users enough information to determine which database meets their particular application requirements. Explains derivation, elements, geographic area, period of record, data set specifications, file size, update frequency, and quality control for each database. Provides users with references for obtaining more detailed information.

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PREFACE

The Database Branch of the Air Force Combat Climatology Center's Operating Location A (OL-A) at Asheville, N.C., wrote this technical note to answer the growing need for a one-source directory to the numerous databases stored at OL-A, AFCCC. Although some of the individual databases have separately issued and detailed "Users Handbooks" that include comprehensive tape formats and code tables, this abbreviated directory gives potential users of climatic database products enough information to make informed judgements on specific product applicability to their specific needs. This technical note supersedes USAFETAC/TN—86/003, *Directory of Climatic Databases Available from OL-A, USAFETAC.*

CONTENTS

Chapter 1

INTRODUCTION

1.1 Directory Purpose. The purpose of this technical note is to familiarize the reader with the databases currently held at OL-A, AFCCC in Asheville, N. C. It is intended to be used as a guide in determining which database would be most useful for a particular application, and if it would be worthwhile to seek further information about that database (such as a detailed format). It is important to remember the maintenance of databases is a dynamic process, and information contained herein is subject to periodic changes. Therefore, we will attempt to update this technical note whenever needed to reflect these changes.

1.2 Directory Format. This directory divides the databases into five categories: Observational, Analysis, Climatological Summaries, Informational, and Forecast. The directory provides the following information on each data set located in the four categories of databases:

- Description—An overview of the data set.
- Elements—List of Meteorological/ Climatological parameters contained in the data set.
- Geographic Area—The geographic coverage of the data set.
- Period of Record—The period for which data is available.
- Data Set Specifications—Information concerning the storage of data on magnetic tape.
- File Size—The number of tapes comprising the data set or the number of tapes per month or year of data.
- Update Frequency—How often the period of record of the data set is updated.
- Quality Control—A brief summary of the quality control performed on the data set at OL-A.
- References—List of published references relating to the data set.

1.3 Database Tape Specifications. ASCII formatted files can be translated to EBCDIC and vice versa. Data can be produced on either 1600 or 6250 BPI 9 track tapes, 37,781 BPI cartridge tapes (EBCDIC formatted files are not available on cartridge), in 8- or 9-bit bytes, with or without internal labels. The block length and record length can not be changed. Some data sets can also be provided on 3 1/2- or 5 1/4-inch floppy disks; however, the sheer volume of data often makes this unfeasible even with data compaction.

1.4 Database Origins. OL-A originally received climatic data in paper copy form. Technicians quality controlled, keypunched, and stored the data on magnetic tape. In the mid-1960s, OL-A began receiving data in magnetic tape form; consequently, the need for keypunching data decreased. This transition continued until the mid-1980s.

Presently, almost all weather data is received via a communications link. Most of this data is collected via the Automated Weather Network (AWN), which includes sites located around the world. These sites collect data disseminated by various countries and then transmit the data to the AWN site at Tinker AFB, Okla. All data collected via the AWN is transmitted to Air Force Global Weather Central (AFGWC), Offutt AFB, Neb., where further processing takes place (including the output of gridded models). After

AFGWC finishes processing the data, OL-A, AFCCC in Asheville, N.C., receives it.

1.5 Data Categories. OL-A's climatic databases are divided into two main categories: observational data and analysis data. Observational databases consist basically of observations taken at a specific point and time. Analysis databases consist of modeled data based on observational and satellite information to provide a picture of the atmosphere at a particular time.

1.6 Analysis Grids. AFGWC creates the atmospheric analyses and stores them on one of the following grids:

- Whole (Coarse) Mesh. A 65x65 polar stereographic projection over the Northern and Southern Hemispheres with approximately 206 NM between grid points at 60° latitude.

- Half Mesh. A 129x129 polar stereographic projection over the Northern and Southern Hemispheres with approximately 103 NM between grid points at 60° latitude.

- Eighth Mesh. A 513x513 polar stereographic projection over the Northern and Southern Hemispheres—approximately 26 NM between grid points at 60° latitude.

- 2.5 degree x 2.5 degree. A grid of 2.5 degrees latitude x 2.5 degrees longitude for each grid point.

- Whole Mesh Octagon. A 47x51 octagonal projection over the Northern and Southern Hemispheres with approximately 206 NM between grid points at 60° latitude.

- Half Mesh Octagon. A 93x101 octagonal projection over the Northern and Southern Hemispheres with approximately 103 NM between grid points at 60° latitude.

- Half Mesh Windows. Subsets of the half mesh grid with windows over North America, Europe, and Asia. Grid size is the same as for other half mesh grids.

- Tropical Strip. A 73x19 array of points on a mercator projection extending completely around the world longitudinally and including that portion of the globe between approximately 41° N latitude and 41° S latitude.

1.7 Additional Information. Further information concerning the data sets described herein may be obtained by contacting the OL-A Data Administration Section at Commercial (704) 271-4299 or DSN 266-3100. Also, information concerning data sets maintained at the National Climatic Data Center (collocated with OL-A) is available on request.

1.8 Data Availability. Depending upon the type and volume of data required, the data can be obtained on a variety of media including 9-Track, 6250 BPI tapes, cartridge tapes, 3.5 or 5.25 floppy disks, CD-ROM, or directly through E-mail or FTP. DoD users (and their contractors) may obtain the data by forwarding a Support Assistance Request (SAR) to:

AFCCC/DOO
859 Buchanan Street
Scott AFB IL 62225-5116
Telephone: (COM) (618)-256-4024
(DSN) 576-4024

The data is available to non-DoD users through:

National Climatic Data Center
151 Patton Ave, Room 120
Asheville NC 28801-5001
Telephone: (COM) (704) 271-4682

Chapter 2

OBSERVATIONAL DATABASES

The databases listed in this section are composed of observational data. These databases undergo extensive quality control.

- DATSAV2 Surface
- Summary of the Day
- DATSAV2 Satellite
- DATSAV2 Rocketsonde
- DATSAV2 Upper-Air
- DATSAV Aircraft
- Lightning
- Winds
- Satellite Moisture Soundings

2.1 DATSAV2 SURFACE

DESCRIPTION: Contains worldwide surface observations (synoptic, airways, METAR, synoptic ship) for about 13,000 stations. All weather elements transmitted are retained. In some cases, the record contains computed or derived values. This database includes "station files" (individual station data sets for selected stations) that receive more extensive quality control.

ELEMENTS:

- Wind direction
- Wind speed
- Barometric pressures
- Pressure tendency and change
- Dry bulb temperature
- Dew point temperature
- Total sky cover
- Visibility
- Past and present weather
- Cloud layer data
- Ceiling
- Precipitation data
- Snowfall and snow depth data
- Runway data
- Hail data
- Sunshine data
- Ground temperature and conditions
- Maximum and minimum temperatures
- Ship data
- Sea surface temperature
- Wave data
- Swell data
- Ship ice reports

GEOGRAPHIC AREA: Worldwide

PERIOD OF RECORD: January 1901 - PRESENT

DATABASE SPECIFICATIONS:

Format:	ASCII
Media:	9-Track, 6,250 BPI Labeled
Record Type:	Variable
Record Length:	1,000 Characters
Block Length:	8,192 Characters

FILE SIZE: 130 Tapes/year

UPDATE FREQUENCY: Monthly (3-10 years for station files).

QUALITY CONTROL: Most data elements checked extensively for transmission and decode errors; systematic algorithms correct any detected errors. Station files undergo additional quality control through manual interaction.

REFERENCE: *DATSAV2 Surface ,USAFETAC Climatic Database Users Handbook No. 4*, USAFETAC/UH—86/004, December 1986

2.2 SUMMARY OF THE DAY

DESCRIPTION: Consists of daily element summaries for 1,795 stations (primarily U. S.-operated) as digitized from original records. Periods of record vary significantly from station to station.

ELEMENTS:

- Maximum temperature
- Minimum temperature
- Peak Wind
- Precipitation
- Mean temperature
- Snowfall
- Snow depth
- Days with:
  - Thunderstorms
  - Sleet
  - Hail
  - Dust or sand
  - Smoke or haze
  - Snow
  - Blowing snow
  - Rain
  - Fog

GEOGRAPHIC AREA: Worldwide.

PERIOD OF RECORD: 1881 to present.

DATABASE SPECIFICATIONS:

Format:	EBCDIC
Media:	9-Track, 6,250 BPI Unlabeled
Record Type:	Fixed
Record Length:	785 characters
Block Length:	785 characters

FILE SIZE: Eleven tapes (approximately 1 tape/3 years added).

UPDATE FREQUENCY: Monthly.

QUALITY CONTROL: Data checked against predetermined limits to eliminate reporting and keypunch errors. Data checked prior to key entry to verify that maximum and minimum temperatures agree with hourly temperatures, 24-hour precipitations and snowfalls agree with 6-hourly entries, and that the snowdepth was reported at the correct hour. Peak wind data are also checked for correctness.

REFERENCE: *Electronic Data Processing References Manual,* Airways Summary AWS Data Family 34, April 1963.

2.3 DATSAV2 SATELLITE

DESCRIPTION: Each GOES wind record contains wind direction and speed information at a single pressure level.

ELEMENTS: Height Wind Direction and Speed Temperature

GEOGRAPHIC AREA: Worldwide.

PERIOD OF RECORD: October 1975 to present.

DATABASE SPECIFICATIONS:

Format:	ASCII
Media:	18-track, 37,871 BPI Labeled
Record Type:	Variable
Record Length:	9,992 Characters
Block Length:	9,996 Characters

FILE SIZE: Six tapes/month.

UPDATE FREQUENCY: Monthly.

QUALITY CONTROL: None.

REFERENCE: None.

2.4 DATSAV2 ROCKETSONDE

DESCRIPTION: Consists of rocketsonde observations, with data reaching from an altitude of 20 kilometers to above 90 kilometers.

ELEMENTS:

Height	Temperature
Pressure	Wind direction and speed
Density	

GEOGRAPHIC AREA: Worldwide.

PERIOD OF RECORD: 1957 to present.

DATABASE SPECIFICATIONS:

Format:	ASCII
Media:	18-track, 37,871 BPI Labeled
Record Type:	Variable
Record Length:	9,992 Characters
Block Length:	9,996 Characters

FILE SIZE: Four tapes.

UPDATE FREQUENCY: Monthly.

QUALITY CONTROL: None

REFERENCE: *AFGWC's Upper-Air Validator System*, AFGWC/TN—90/001, February 1990

2.5 DATSAV2 UPPER-AIR

DESCRIPTION: Includes radiosonde, rawinsonde, PIBAL (pilot balloon), and dropsonde observations, with data reaching from the surface to, in some cases, higher than 10 MB.

ELEMENTS:

Pressure	Stability indices	Height
Temperature	Dew point temperature	Wind speed
Thermal wind speed	Thermal wind direction	Wind direction
Maximum winds	Mean winds	Precipitable water
Saturation moisture ratio	Cloud data	Tropopause data
Present weather	Freezing Levels.	

GEOGRAPHIC AREA: Worldwide.

PERIOD OF RECORD: January 1973 to present.

DATABASE SPECIFICATIONS:

Format:	ASCII	
Media:	18-track, 37,871 BPI	Labeled
Record Type:	Variable	
Record Length:	9,992 Characters	
Block Length:	9,996 Characters	

FILE SIZE: 18 tapes/year.

UPDATE FREQUENCY: Monthly.

QUALITY CONTROL: Assessment of the quality of data currently is in progress. Problems found in the data are provided back to AFGWC for correction of future data.

REFERENCE: *AFGWC's Upper-Air Validator System*, AFGWC/TN—90/001, February 1990.

2.6 DATSAV AIRCRAFT

DESCRIPTION: Consists of aircraft reports collected worldwide, with the greatest concentration over the United States and along major air routes. Types of reports included are: RECCO (reconnaissance observation), COMBAR (combat aircraft report), MAC Abbreviated (Military Airlift Command aircraft report), CODAR (non-reconnaissance aircraft upper-air report), ASDAR (aircraft-satellite data acquisition radar report), AIREPS (aircraft reports), domestic PIREPS (pilot reports), and ICAO (International Civil Aviation Organization report).

ELEMENTS:

Wind direction	Wind speed	D-value
Temperature	Dew point depression	Frequency of turbulence
Turbulence Intensity	Turbulence Type	Cloud and contrail data
Icing data	In-flight/off-course weather	Flight visibility
	Radar data	Altitude of mandatory pressure level

GEOGRAPHIC AREA: Worldwide.

PERIOD OF RECORD: October 1975 to present.

DATABASE SPECIFICATIONS:

Format:	Binary
Media:	18-track, 37,871 BPI Labeled
Record Type:	Variable
Record Length:	2,500 Bytes
Block Length:	9,990 Bytes

FILE SIZE: Three tapes/year.

UPDATE FREQUENCY: Monthly

QUALITY CONTROL: None.

REFERENCE: *USAFETAC DATSAV Database Handbook*, USAFETAC/TN—77-2, December 1977

2.7 LIGHTNING

DESCRIPTION: The lightning database contains lightning stroke information for the continental United States collected through various networks and primarily compiled by GEOMET Data Services. Not available for non-DoD customers.

ELEMENTS:

Number of strokes	Polarity
Peak Current Signal Strength	Relative Amplitude

GEOGRAPHIC AREA: North America.

PERIOD OF RECORD: 1985 to present.

DATABASE SPECIFICATIONS:

Format:	ASCII
Media:	18-track, 37,871 BPI Labeled
Record Type:	Fixed
Record Length:	62 Characters
Block Length:	8,184 Characters

FILE SIZE: Eight tapes/year

UPDATE FREQUENCY: Annually.

QUALITY CONTROL: Gross limit check only.

REFERENCE: None.

2.8 WINDS

DESCRIPTION: This database contains meteorological data provided by the mesoscale Weather Information Network Display Systems at Vandenberg AFB and the Kennedy Space Center/Cape Canaveral complex. Meteorological instruments at various levels on towers record a variety of parameters continuously. Towers reach a height of approximately 500 feet. Processors at the sites derive 5 minute statistics from the continuous monitoring of the environment.

ELEMENTS:

Temperature	Dew point temperature
Temperature change	Wind speed and direction
Precipitation	Pressure
Visibility	Shortwave and longwave Radiation

GEOGRAPHIC AREA: Vandenberg AFB, Calif. and Cape Canaveral/Kennedy Space Center, Fla.

PERIOD OF RECORD: January 1986 to present.

DATABASE SPECIFICATIONS:

Format:	ASCII	
Media:	9-track, 6,250 BPI	Unlabeled
Record Type:	Variable	
Record Length:	1,360 Characters	
Block Length:	8,192 Characters	

FILE SIZE: 1 tape/month.

UPDATE FREQUENCY: Monthly.

QUALITY CONTROL: None

REFERENCE: None

2.9 SATELLITE MOISTURE SOUNDINGS

DESCRIPTION: The Special Sensor Microwave/Temperature (SSM/T2) consists of a control section and pressure levels (normally six levels: 1,000 mb, 850 mb, 700 mb, 500 mb, 400 mb, 300 mb) and a relative humidity for each level. Data is obtained from the Defense Meteorological Satellite Program (DMSP).

ELEMENTS: Relative humidity values.

GEOGRAPHIC AREA: Worldwide

DATABASE SPECIFICATIONS:

Format:	ASCII
Media:	18-track, 37871 BPI Labeled
Record:	Type: fixed
Record Length:	84 Characters
Block Length:	8148 Characters

FILE SIZE: Five tapes/month.

UPDATE FREQUENCY: Monthly

QUALITY CONTROL: Gross error quality control only.

REFERENCE: None

Chapter 3

ANALYSIS DATABASES

The following databases are composed of analysis data:

- RTNEPH (Real-Time Nephanalysis) 6-Month
- RTNEPH (Low, Middle, High Type/Amount) Histogram
- RTNEPH-LMHT/A Hemispheric
- High Resolution Analysis
- Eighth Mesh Surface Temperature
- Boundary Layer Windows
- Upper-Air Window - Fine Mesh
- Vertical Velocity - HIRAS
- Agricultural Meteorological Analysis

3.1 RTNEPH (REAL TIME NEPHANALYSIS) 6 - MONTH

DESCRIPTION: The RTNEPH database consists of cloud and weather information compiled from both conventional surface and upper-air reports and satellite data. Observed clouds are placed within one of four floating layers, with the first layer defined as the highest. The analysis data is on a 512x512 subset of the eighth mesh grid and includes data for both hemispheres, eight times a day on each synoptic hour. Each hemisphere is divided into 60 boxes (64x64 grid points in each) on the eighth mesh grid. Information for a particular grid point may include either 0, 1, 2, 3, or 4 layers of cloud information, depending on observed conditions.

ELEMENTS:

Cloud type for each of the 4 layers	Percent coverage for each of the 4 layers
Total cloud coverage	Present weather report
Visibility report	Minimum cloud base for each of 4 layers
Data age and source information	Maximum cloud top for each of 4 layers

GEOGRAPHIC AREA: Worldwide.

PERIOD OF RECORD: January 1984 to present.

DATABASE SPECIFICATIONS:

Format:	Binary
Media:	18-track, 37,871 BPI Labeled
Record Type:	Fixed
Record Length:	14,344 Bytes
Block Length:	14,344 Bytes

FILE SIZE: 6-months/1 box/tape/hemisphere.

UPDATE FREQUENCY: Biannual.

QUALITY CONTROL: Data checked for gross errors to eliminate impossible values or contradictions.

REFERENCE: *RTNEPH, USAFETAC Climatic Database Users Handbook No. 1*, USAFETAC/UH—86/001, September 1986 (Revised June 1991).

3.2 RTNEPH LMHT/A (LOW, MIDDLE, HIGH TYPE/AMOUNT) HISTOGRAM

DESCRIPTION: The LMHT/A database contains low, middle, high cloud types and amounts plus total cloud coverage derived from the RTNEPH database. Analyses are on a 512x512 subset of the eighth mesh grid and include data for both hemispheres eight times a day on each synoptic hour. The LMHT/A histogram file consists of a frequency distribution of the number of days by month-hour each element falls within specified limits.

ELEMENTS:

Total cloud amount	Low cloud type and amount
Middle cloud type and amount	High cloud type and amount

GEOGRAPHIC AREA: Worldwide.

PERIOD OF RECORD: January 1984 to present.

DATABASE SPECIFICATIONS:

Format:	Binary
Media:	18-track, 37,871 BPI Labeled
Record Type:	Fixed
Record Length:	15,796 Bytes
Block Length:	15,796 Bytes

FILE SIZE: Two tapes/month/hemisphere.

UPDATE FREQUENCY: Monthly.

QUALITY CONTROL: Data checked for gross errors to eliminate impossible values or contradictions.

REFERENCE: *RTNEPH, USAFETAC Climatic Database Users Handbook No. 1*, USAFETAC/UH—86/001, September 1986 (Revised June 1991).

3.3 RTNEPH LMHT/A HEMISPHERIC

DESCRIPTION: The LMHT/A database contains low, middle, and high cloud types/amounts plus total cloud coverage derived from the RTNEPH database. Analyses are on a 512x512 subset of the eighth mesh grid and include data for both hemispheres eight times a day on each synoptic hour.

ELEMENTS:

Total cloud amount	Low cloud type and amount
Middle cloud type and amount	High cloud type and amount

GEOGRAPHIC AREA: Worldwide.

PERIOD OF RECORD: January 1984 to present.

DATABASE SPECIFICATIONS:

Format:	Binary
Media:	18-track, 37,871 BPI Labeled
Record Type:	Fixed
Record Length:	14,356 Bytes
Block Length:	14,356 Bytes

FILE SIZE: Three tapes/month/hemisphere.

UPDATE FREQUENCY: Monthly.

QUALITY CONTROL: Data checked for gross errors to eliminate impossible values or contradictions.

REFERENCE: *RTNEPH, USAFETAC Climatic Database Users Handbook No. 1*, USAFETAC/UH—86/001, September 1986 (Revised June 1991).

3.4 HIGH RESOLUTION ANALYSIS

DESCRIPTION: The HIRAS database consists of surface to upper-air analysis data on the 2.5 x 2.5 degree grid. Each analysis includes mandatory pressure levels (surface, 1000, 850, 700, 500, 400, 300, 250, 200, 150, 100, 70, 50, 30, 20, and 10 MB). Analysis times are 00Z, 06Z, 12Z, and 18Z. The database is subdivided into five regions by latitude belt. Although HIRAS is the primary model, the MULTAN model is used for moisture analyses. Data sources include conventional surface observations, upper-air soundings, and satellite data.

ELEMENTS:

Temperature	Dew point depression	Specific humidity
Relative humidity	Sea-level pressure	U-wind component
V-wind component	D-value	Precipitable water
Tropopause pressure	Tropopause height	Vorticity
Tropopause temperature		

GEOGRAPHIC AREA: Worldwide.

PERIOD OF RECORD: January 1985 to present.

DATABASE SPECIFICATIONS:

Format:	ASCII	
Media:	18-track, 37,871 BPI	Unlabeled
Record Type:	Fixed	
Record Length:	13,124 Characters	
Block Length:	13,124 Characters	

FILE SIZE: Five-seven days/tape.

UPDATE FREQUENCY: Monthly.

QUALITY CONTROL: Data checked for gross errors, impossible values, and contradictions.

REFERENCE: *HIRAS ,USAFETAC Climatic Database Users Handbook No. 5*, USAFETAC/UH—88/001, October 1988; and *AFGWC's Advanced Weather Analysis and Prediction System (AWAPS)*, AWS/TN—86/001, June 1986.

3.5 EIGHTH MESH SURFACE TEMPERATURE

DESCRIPTION: Consists of analyses of surface temperatures (in degrees Kelvin to tenths) on a 512x512 subset of the eighth mesh grid. It is produced eight times daily on each synoptic hour. Analyses serve as background data for comparison with new satellite data to locate relatively cold areas that represent clouds. Analyses use latest surface observations and synoptic reports updated every 3 hours for land areas and every 12 hours (or more) for ocean areas. Temperatures represent ambient air temperatures over land and sea surface temperatures over the ocean.

ELEMENTS: Temperature.

GEOGRAPHIC AREA: Worldwide.

PERIOD OF RECORD: April 1979 to present.

DATABASE SPECIFICATIONS:

Format:	ASCII
Media:	18-track, 37,871 BPI Labeled
Record Type:	Fixed
Record Length:	2,112 Characters
Block Length:	8,448 Characters

FILE SIZE: Two tapes/month/hemisphere.

UPDATE FREQUENCY: Monthly

QUALITY CONTROL: Gross error checks performed against predetermined limits to eliminate impossible or contradictory values.

REFERENCE: *Surface Temperature Analysis, USAFETAC Climatic Database Users Handbook No.2*, USAFETAC/UH—86/002, October 1988.

3.6 BOUNDARY LAYER WINDOWS

DESCRIPTION: Consists of boundary layer window analyses on the half mesh grid for Asia, Europe, and the United States. Analysis times are 00Z and 12Z. Window sizes are 29x27 for the United States and 29x35 for Asia and Europe. Each grid point consists of data for the following eight levels: surface, 50, 150, 300, 600, 900, 1,200, and 1,600 meters above ground level. Data sources include conventional surface reports and upper-air soundings.

ELEMENTS:

U-wind component	V-wind component	D-value
W-wind Component	Temperature	Specific humidity
Specific moisture	Relative humidity	
Height above mean sea level		
U-component of fractional wind field		
V-component of fractional wind field		

GEOGRAPHIC AREA: United States, Europe and Asia.

PERIOD OF RECORD: January 1985 to present.

DATABASE SPECIFICATIONS:

Format:	Binary	
Media:	18-track, 37,871 BPI	Unlabeled
Record Type:	Fixed	
Record Length:	8,316 BYTES	
Block Length:	8,316 BYTES	

FILE SIZE: One year/tape/window.

UPDATE FREQUENCY: Monthly.

QUALITY CONTROL: None.

REFERENCE: None.

3.7 UPPER-AIR WINDOWS (FINE MESH)

DESCRIPTION: These consist of surface to upper-air analyses on the half mesh grid for Asia, Europe, and North America. Analysis times are 00Z and 12Z. Window sizes are 37x39 for North America and 35x41 for Asia and Europe. Each North American grid point has data for 11 levels: surface, 1,000, 850, 700, 500, 400, 300, 250, 200, 150, and 100 MB. Each Asian and European grid point has data for six levels: surface, 1,000, 850, 700, 500, and 300 MB. Two stability indices are included: Total-Totals and SWEAT index. Data sources include conventional surface reports, upper-air soundings, and satellite data.

ELEMENTS:

U-wind component	V-wind component
D-value	Temperature
Dew point depression	Surface pressure
Total-Totals index	SWEAT index.

GEOGRAPHIC AREA: North America, Europe, and Asia.

PERIOD OF RECORD: January 1985 to present.

DATABASE SPECIFICATIONS:

Format:	Binary
Media:	18-track, 37,871 BPI Unlabeled
Record Type:	Fixed
Record Length:	5,820 Bytes
Block Length:	5,820 Bytes

FILE SIZE: 1 year/tape/window.

UPDATE FREQUENCY: Monthly.

QUALITY CONTROL: None.

REFERENCE: None.

3.8 VERTICAL VELOCITY - HIRAS

DESCRIPTION: Consists of vertical velocity analysis (in MB per second) on the 2.5 X 2.5 global grid. Levels included are: 850 mb, 700 mb, 500 mb, 300 mb, 200 mb, 150 mb.

ELEMENTS: Vertical Velocity.

GEOGRAPHIC AREA: Worldwide.

PERIOD OF RECORD: June 1988 to present.

DATABASE SPECIFICATIONS:

Format:	ASCII
Media:	18-track, 37,871 BPI Unlabeled
Record Type:	Fixed
Record Length:	13,124 Characters
Block Length:	13,124 Characters

FILE SIZE: One tape/month.

UPDATE FREQUENCY: Monthly.

QUALITY CONTROL: None.

REFERENCE: *HIRAS , USAFETAC Climatic Database Users Handbook No. 5*, USAFETAC/UH—88/001, October 1988; and *AFGWC's Advanced Weather Analysis and Prediction System (AWAPS)*, AWS/TN—86/001, June 1986.

3.9 AGRICULTURAL METEOROLOGICAL ANALYSIS

DESCRIPTION: This database contains model-derived agricultural meteorological analysis data of global land masses except Alaska, Northern Canada, and the Antarctic. AFGWC runs the agricultural model using other modeled inputs such as the analysis and cloud models. The 17 elements are produced once per day for each grid point. Distribution of this data is limited to DoD and AFCCC customers.

ELEMENTS:
Snow depth
Maximum/Minimum/Mean temperature
Relative Humidity at Minimum temperature
Wind - daily accumulation
Soil temperature - mean top layer
Top and lower layer soil moisture
Estimated/real and merged precipitation
Mean hourly actual and real potential evapotranspiration
Mean hourly solar and longwave radiation

GEOGRAPHIC AREA: Global land areas.

PERIOD OF RECORD: June 1995 to present.

DATABASE SPECIFICATIONS:

Format:	ASCII
Media:	18 track, 37871 BPI Labeled
Record Type:	Fixed
Record Length:	80 Characters
Block Length:	8,000 Characters

FILE SIZE: Two tapes/month.

UPDATE FREQUENCY: Monthly.

QUALITY CONTROL: Gross error quality control and data limits checks.

REFERENCE: None.

Chapter 4

CLIMATOLOGICAL SUMMARIES

The following databases contain climatological summaries for worldwide locations:

- Surface Observational Climatic Summaries (SOCS)
- Snow Depth Climatology

4.1 SURFACE OBSERVATIONS CLIMATIC SUMMARIES (SOCS)

DESCRIPTION: Consists of a series of tables that provide in-depth climatological information for a given location. Tables based upon hourly reports are displayed by year/month/three hour groups. Tables based upon daily data are displayed by year/month. These summaries are prepared for all U.S. military stations reporting meteorological data and selected civilian stations.

ELEMENTS:

Atmospheric Phenomena		Precipitation	Snowfall
Snow Depth		Surface Wind	Ceiling
Visibility		Sky Cover	Temperature
Relative Humidity		Pressure	
Crosswind Summaries			
Degree Day Summaries			

GEOGRAPHIC AREA: Worldwide.

PERIOD OF RECORD: January 1901 to present.

DATABASE SPECIFICATIONS:

Format:	ASCII
Media:	3.5- or 5.25-inch Floppy Unlabeled Disk
Record Type:	N/A
Record Length:	N/A Characters
Block Length:	N/A Characters

FILE SIZE: One tape/summary.

UPDATE FREQUENCY: Every 10 Years or by request.

QUALITY CONTROL: Summaries are produced from database tapes that have been checked extensively for transmission errors. Errors corrected by systematic algorithms and manual interaction.

REFERENCE: None.

4.2 SNOW DEPTH CLIMATOLOGY

DESCRIPTION: This product provides mean monthly snow depth values on the polar stereographic eighth mesh grid (approximately 25 NM spacing) over the entire globe.

ELEMENTS: Mean snow depth.

GEOGRAPHIC AREA: Worldwide.

PERIOD OF RECORD: Climatological Value.

DATABASE SPECIFICATIONS:

Format:	ASCII	
Media:	9-track, 6,250 BPI	Unlabeled
Record Type:	Fixed	
Record Length:	16,408 Characters	
Block Length:	16,408 Characters	

FILE SIZE: Two tapes.

UPDATE FREQUENCY: No update currently planned.

QUALITY CONTROL: Multiple sources of snow depth data were evaluated for accuracy prior to inclusion into the climatology.

REFERENCE: *Global Snow Depth Climatology*, USAFETAC/TN—88/006, December 1988

Chapter 5

INFORMATIONAL DATABASES

The following databases contain useful information, but do not have climatological data.

- Master Station Catalog
- Terrain-Geography File

5.1 MASTER STATION CATALOG

DESCRIPTION: The Air Weather Service Master Station Catalog is a list of weather stations worldwide (with location and current reporting status) that are, or have been, transmitting surface data, upper-air data, radar reports, or forecasts. This database contains about 16,000 entries. A Master Station Catalog Chronology file that reflects station change entries made from January 1977 through the current month is also maintained.

ELEMENTS:

Station number	Elevation	Call letters
Data type	Station name	Pressure reporting level
Country or State	Latitude	Longitude
Wind/temperature reporting units		Station reporting status
Source of information on station.		

GEOGRAPHIC AREA: Worldwide.

PERIOD OF RECORD: 1981 to present.

DATABASE SPECIFICATIONS:

Format:	ASCII	
Media:	9-track, 6,250 BPI	Unlabeled
Record Type:	Fixed	
Record Length:	132 Characters	
Block Length:	132 Characters	

FILE SIZE: 26 tapes/year.

UPDATE FREQUENCY: Bi-weekly.

QUALITY CONTROL: AFGWC's Detachment 7 at Tinker AFB, Okla., makes changes to the Air Weather Service Master Station Catalog using information from all sources available, such as OL-A, WMO, ICAO and FAA.

REFERENCE: *Air Weather Service Master Station Catalog, USAFETAC Climatic Databases Users Handbook No. 6*, USAFETAC/UH—93/001, March 1993.

5.2 TERRAIN-GEOGRAPHY FILE

DESCRIPTION: The Terrain-Geography file contains worldwide geographical and terrain height data on the eighth mesh grid.

ELEMENTS: Geography indicator: water, ice, land, coast, or off-hemisphere
Time zone indicator
Industrial indicator
Elevation in decameters

GEOGRAPHIC AREA: Worldwide.

PERIOD OF RECORD: N/A.

DATABASE SPECIFICATIONS:

Format:	ASCII	
Media:	9-track, 6,250 BPI	Unlabeled
Record Type:	Fixed	
Record Length:	8,196 Characters	
Block Length:	8,196 Characters	

FILE SIZE: One tape/hemisphere.

UPDATE FREQUENCY: As required.

QUALITY CONTROL: Data quality controlled manually by checking plotted printouts against charts or maps, documentation of discrepancies, and correction of data.

REFERENCE: *DTED (Digital Terrain Elevation Data) Study*, USAFETAC/PR—92/002, June 1992.

Chapter 6

FORECAST DATABASES

This following databases consist of actual forecast information:

- Terminal Area Forecasts
- Trajectory Bulletins

6.1 TERMINAL AREA FORECASTS

DESCRIPTION: This database consists of METAR format Terminal Aerodrome Forecasts (TAFs), including amendments and corrections, for all active Air Force Weather TAF locations. This includes "KQ" locations. Detachment 7, AFGWC collects all forecast bulletins on tape and sends the information to OL-A, AFCCC.

ELEMENTS:

- Station number
- Date-Time group
- Amendment and correction times
- Wind direction, speed, and gusts
- Visibility
- Weather
- Sky Condition
- Icing
- Turbulence
- Temperature
- Altimeter
- Remarks

GEOGRAPHIC AREA: Worldwide.

DATABASE SPECIFICATIONS:

Format	ASCII
Media:	18-track, 37871 BPI Unlabeled
Record Type:	Variable
Record Length:	373 Characters
Block Length:	373 Characters

FILE SIZE: One Tape/year.

UPDATE FREQUENCY: Annually or semiannually - files are small.

QUALITY CONTROL: A decoder program eliminates all non-AWS TAFs, improperly coded TAFs, and garbled or unreadable TAFs.

REFERENCE: None.

6.2 TRAJECTORY BULLETINS

DESCRIPTION: Consists of trajectory bulletins produced twice daily for 121 locations in the Northern Hemisphere. Bulletins show origin of air parcels that will be over a station at forecast time. They contain 21 separate starting points (given by latitude, longitude, and pressure level) for 21 separate trajectory paths that terminate over a station at seven times (06-, 12-, 18-, 24-, 30-, 36-, and 48-hour forecasts) and at three pressure levels (850, 700, and 500 millibars).

ELEMENTS:

Temperature	Dew point temperature
Cloud Cover	Gradient temperature and dew point

GEOGRAPHIC AREA: Most of Northern Hemisphere.

PERIOD OF RECORD: January 1985 to Present.

DATABASE SPECIFICATIONS:

Format:	Binary
Media:	9-track, 6250 BPI Unlabeled
Record Type:	Variable
Record Length:	9,636 Bytes
Block Length:	9,636 Bytes

FILE SIZE: One tape/month.

UPDATE FREQUENCY: Monthly.

QUALITY CONTROL: No quality control performed on the data.

REFERENCE: *Trajectory Bulletins: Fundamentals and Operational Use,* AFGWC/FM—84/001, July 1984.

DEPARTMENT OF THE AIR FORCE
AIR FORCE COMBAT CLIMATOLOGY CENTER (AFWA)
ASHEVILLE, NORTH CAROLINA 28801-5002

20 July 2005

MEMORANDUM FOR DTIC-OQ

ATTENTION: LARRY DOWNING
8725 JOHN J. KINGMAN ROAD
FORT BELVOIR, VA 22060-6218

FROM: Air Force Weather Technical Library
151 Patton Ave, Rm 120
Asheville, NC 28801-5002

SUBJECT: CHANGE CLASSIFICATION AND DISTRIBUTION STATEMENTS

1. AD254761 – Seasonal and latitudinal variations of air density in the mesosphere (30 to 80 kilometers), March 1961.

2. AD254659 – Air density profiles for the atmosphere between 30 and 80 kilometers, Jan. 1961.

3. ADB099413 – Electro optical/meteorological simulation model, Aug. 1985.

4. ADB130894 – Directory of climatic databases available from OL-A, USAFETAC, Jan. 1996.
→ REPLACED BY AOA304246.

All the above documents need to be changed to "Approved for Public Release, Distribution Unlimited" please.

Susan A. Tarbell

SUSAN A. TARBELL
Librarian, Classified Custodian,
DTIC Point of Contact